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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,898

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Kohei Shimoda

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EXAMINER

CHEN, CHRISTINE

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

05/29/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/575,898	<b>Applicant(s)</b> SHIMODA ET AL.	
	<b>Examiner</b> CHRISTINE CHEN	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/16/2007</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Status***

Claims 1 and 6-12 are pending.

### ***Status of Previous Rejections/Objections***

The previous rejection of claims 1, 6, 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Schmidt (US 5590387) in view of Amiet (US 3617253) and Dunkley (US 4212736) is withdrawn. The previous rejection of claims 7-8 and 11-12 under 35 U.S.C. 103(a) as being unpatentable over Schmidt (US 5590387) is withdrawn.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6, and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (US 5590387) in view of Yokoyama (US 6190578).

Claim 1 is written as a product-by-process claim. In such instances, the claim is drawn to the product and only those process steps which impart a particular feature to the product are considered, wherein the feature is given patentable weight due to its relation to the final product. Therefore, claim 1 is interpreted by the examiner as a granular metal powder made by metal particles having an average particle diameter of at least 1 nm and at most 100 nm, contains an organic compound, has an apparent

density of at least 1 g/ml and at most 5.0 g/ml; and contains water with a content of at least 0.1 wt% and at most 1.5 wt %.

Schmidt discloses a method for producing metal sintered bodies and coatings, wherein the intermediate product is a metal powder that comprises nanoscale metal particles and an organic compound.

The metal particles are composed of a material selected from the group comprising:

- (a) a metal selected from the group consisting of Fe, Co, Ni, W, Cr and Mo having an average particle diameter of at least 1 nm and at most 100 nm;
- (b) an alloy of Cr, Mo, W, Fe, Co, Ni (see claims 4-7).

Schmidt's intermediate product, a metal powder comprising nanoscale metal particles and an organic compound, is produced by preparing a solution comprising: a medium selected from the group consisting of water, a polar organic solvent, and a mixture of them; nanoscale metal particles; and an organic compound capable of being adsorbed on the surface of the metal particles. This step is followed by the drying of a medium selected from the group consisting of the water and the organic solvent (see col. 5 line 8-col. 7 line 10 and claim 1).

With regards to the apparent density and granular structure required by claims 1 and 6, since the prior art surface-modified metal powder (i.e. intermediate product) is made by a process that is substantially the same as that being claimed, and since the process starting materials are substantially the same as that being claimed, it is reasonably expected that the metal powder would have an apparent density and

Art Unit: 1793

granular structure as being claimed. If there is any difference in the apparent density or granular structure between the prior art and claimed metal powder, the difference must have been minor and obvious. The burden is now shifted to the applicant who must show by evidence that the above-identified properties do not necessarily exist in the prior art product.

With regards to the water content recited in claims 1 and 6, Schmidt discloses a step of drying off the water and the organic solvent either partly or entirely but does not specify a particular water content to be reached.

Yokoyama, in disclosing a metal powder comprising metal particles and an organic binder, discloses the regulation of water content in the metal powder. Too much water will promote the curing of the organic compound, thereby deteriorating the preservation stability in some cases, or making oxidation proceed excessively (see col. 16 lines 53-63).

Given Yokoyama's disclosure on water content, it would have been obvious to one of ordinary skill in the art to modify the water content of Schmidt's powder accordingly in order to prevent the excessive procedure of oxidation. One could find a satisfactory wt. % of water content through routine experimentation.

With regards to the powder diameter required in claims 7 and 8, Schmidt does not disclose the diameter of the metal powder.

Yokoyama, in disclosing a metal powder comprising metal particles and an organic binder, discloses that an average particle size between 2-15 microns is

Art Unit: 1793

advantageous to utilize the conductivity feature of the metal particles (see col. 6 lines 25-39).

Given Yokoyama's disclosure on particle diameter, it would have been obvious to one of ordinary skill in the art to utilize Schmidt's process to form a metal powder product having a particle diameter selected within the range specified by Yokoyama.

With regards to the carbon content of the organic compound as recited in claims 9 and 10, one of the organic compounds Schmidt discloses is guanidine carbonate, which is an organic compound with a content of about 19 wt. % in terms of carbon content (see col. 6 lines 29-30).

3. Applicant's arguments with respect to claims 1 and 6-12 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE CHEN whose telephone number is (571)270-3590. The examiner can normally be reached on Monday-Friday 8:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

CC